

Remarks

Applicants have carefully reviewed the office action mailed November 3, 2003. Claims 49-100 are pending and have been rejected. Applicants have amended claims 49 and 75.

Claim Rejections—35 U.S.C. §103

Claims 49-56, 61-64, 67, 69 and 73 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. (U.S. Patent No. 5,743,875) in view of Fontirroche et al. (U.S. Patent No. 5,538,510). Applicants respectfully traverse the rejection.

Neither Sirhan et al. nor Fontirroche et al. disclose a bonding region wherein an outside wall surface of a second tube inserted through an orifice of a first tube and extending distally from the first tube is bonded to an outside wall surface of the first tube.

Figure 16 of Sirhan et al. is representative of the embodiments of Sirhan et al., as it includes every type of bonding region disclosed in any of the embodiments of Sirhan et al. It is unnecessary to describe the types of bonds disclosed by Sirhan et al. because none of the bonding regions are of the configuration claimed. It is only necessary to describe the configuration between tubes 33 and 32 because tube 33 is the only tube which is inserted through and extends distally from an orifice of another tube. Tube 32 has an orifice (guidewire port 42) through which tube 33 is inserted. Tube 33 also extends distally from tube 32. At the proximal side of guidewire port 42, a proximal edge of tube 33 is joined to an edge of tube 32 in a butt joint. Distally of guidewire port 42, an outside wall surface of tube 33 is bonded to an inside wall surface of tube 32. Again,

distal balloon 37, an outside wall surface of tube 33 is bonded to an inside wall surface of tube 32. There is no bonding region between an outside wall surface of a first tube and an outside wall surface of a second tube where the second tube is inserted through and extends distally from an orifice in the second tube.

The Examiner cites various sections of the specification of Sirhan et al. as disclosing such a configuration. None of those sections disclose the claimed configuration. In column 6, lines 1-3, Sirhan et al. recite “A slit 44 is provided in the secured sections of the inner and outer tubular members 33 and 32 respectively...” This disclosure merely describes slit 44, a feature in tubes 33 and 32. In column 3, lines 17-23, Sirhan et al. recite:

The bond between the secured inner and outer tubular members need not be continuous. It may be intermittent, so long as a significant portion of the interface between the two members is secured along the length. The inner and outer tubular members may be secured together by heat or laser bonding, adhesive bonding, heat shrinking the outer tube onto the inner tube or other suitable means.

This section merely describes that there is a bond between the inner tubular member and the outer tubular member; it does not describe a bond between an outer wall surface of the inner tubular member and an outer wall surface of the outer tubular member. In column 7, line 59 through column 8, line 16, Sirhan et al. recite:

The above described catheters may be made by conventional techniques well known to those skilled in the art. Many suitable techniques are described in the references referred to herein. The small diameter distal sections may be formed by heat shrinking the portion of the outer tubular members which form the distal sections onto the underlying inner tubular members with a mandrel disposed in the space between the inner and outer tubular members so that upon the heat shrinking of the outer tubular members an inflation lumen is formed through the distal sections which is in fluid communication with the lumen in the proximal portion of the catheter body and the interior of the balloon. This bonds the small dimensioned distal section to the inner tubular member. A mandrel may

also be inserted into the inner lumen of the inner tubular member to support the latter during the heat shrinking of the outer tubular member thereon to maintain its circularity. Alternate methods may be employed to make the small dimensioned distal section. For example, the small dimension distal section 17 may be preformed and then be adhesively bonded to the exterior of the inner tubular member. Multiple lumens similar to the inflation lumen may be formed in the small dimensioned section, such as the top and bottom thereof, by employing multiple mandrels when heat shrinking the outer tubular member onto the exterior of the inner tubular member.

The language in this section merely recites alternate methods of making and does not disclose the claimed configuration. Indeed, the language “heat shrinking the outer tubular member onto the exterior of the inner tubular member” necessarily means that the bonding region is between the outside wall surface of the inner tubular member and the inside wall surface of the outer tubular member. This simply does not disclose a bonding region wherein the inner tubular member outside wall surface is bonded to the outer tubular member outside wall surface. Nowhere does Sirhan et al. disclose a bond between the outside wall surfaces of the inner and outer tubular members.

Fontirroche et al. does not disclose the claimed configuration either.

Unlike either Sirhan et al. or Fontirroche et al., applicants claim a catheter shaft for use in a single-operator exchange configuration which has several advantages. For example, by bonding the outside walls of the first and second tubes in the manner claimed, applicants have provided a configuration where the first and second tubes can be bonded using lap joints over substantially all the circumference of the second tube. This may provide a stronger joint and help to ensure the integrity of the inflation lumen. In a second example advantage, unlike the embodiments disclosed by Sirhan et al., the catheter shaft of claim 49 can be formed without extending the outer diameter of the

catheter beyond the diameter of the first tube. This permits a catheter having the same size inflation lumen, for example, to be introduced into smaller body vessels.

As Sirhan et al., alone or in view of Fontirroche et al., does not suggest or teach all the elements of claim 49, applicants submit that claim 49 is in condition for allowance. As claims 50-56, 61-64, 67, 69 and 73 depend from claim 49, directly or indirectly, and contain additional claim elements, applicants submit that these claims are in condition for allowance.

Claims 57, 66, 68, 70 and 74 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. in view of Fontirroche et al. and further in view of Berg et al. (U.S. Patent No. 5,792,116). Claims 58, 59, 65 and 71 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. in view of Fontirroche et al. and further in view of Javier, Jr. et al. (U.S. Patent No. 6,093,177). Claims 60 and 72 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. in view of Javier, Jr. et al., further in view of Fontirroche et al., and further in view of Berg et al.

Applicants respectfully traverse the rejections. As these claims depend from claim 49, directly or indirectly, and contain additional claim elements, applicants submit that these claims are in condition for allowance.

Claims 75-82, 87-90, 93, 95, and 99 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sirhan et al., in view of Fontirroche et al., and further in view of Ressemann et al. (U.S. Patent No. 5,571,087). Applicants respectfully traverse these rejections.

Claim 75 is directed to a catheter shaft where a second tube is inserted through and extends distally from an orifice of a first tube, and includes a bonding region wherein

the second tube outside wall surface is bonded to said first tube outside wall surface. As discussed above, neither Sirhan et al. nor Fontirroche et al. disclose such an embodiment. Ressemann et al. likewise discloses no such embodiment. Therefore, all the elements of claim 75 are not taught or suggested.

Applicants therefore submit that claim 75 is in condition for allowance. As claims 76-82, 87-90, 93, 95, and 99 depend from claim 75, directly or indirectly, and contain additional claim elements, applicants submit that these claims are in condition for allowance.

Claims 83, 94, 96 and 100 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. in view of Fontirroche et al., further in view of Ressemann et al., and further in view of Berg et al. Claims 84, 85, 91, and 97 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. in view of Fontirroche et al., further in view of Ressemann et al., and further in view of Javier, Jr. et al. Claims 86, 92, and 98 rejected under 35 U.S.C. § 103(a) as being unpatentable over Sirhan et al. in view of Fontirroche et al., further in view of Ressemann et al., further in view of Berg et al., and further in view of Javier, Jr. et al.

Applicants respectfully traverse these rejections. As these claims depend from claim 75, directly or indirectly, and contain additional claim elements, applicants submit that these claims are in condition for allowance.

Applicants submit that all pending claims, namely claims 49-100, are in condition for allowance. Reexamination and reconsideration are respectfully requested. Issuance of a Notice of Allowance in due course is requested. If a telephone conference may be of assistance, please call the undersigned attorney at 612-677-9050.

Respectfully submitted,

TIMOTHY STIVLAND ET AL.

By their Attorney,

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Glenn M. Seager, Reg. No. 36,926

Customer No. 28075

CROMPTON, SEAGER & TUFTE, LLC

1221 Nicollet Avenue, Suite 800

Minneapolis, Minnesota 55403-2420

Tel: (612) 677-9050